



PeGASus

Newsletter of the

Royal Astronomical Society of Canada: Prince George Centre

Published: January to May & September to November.

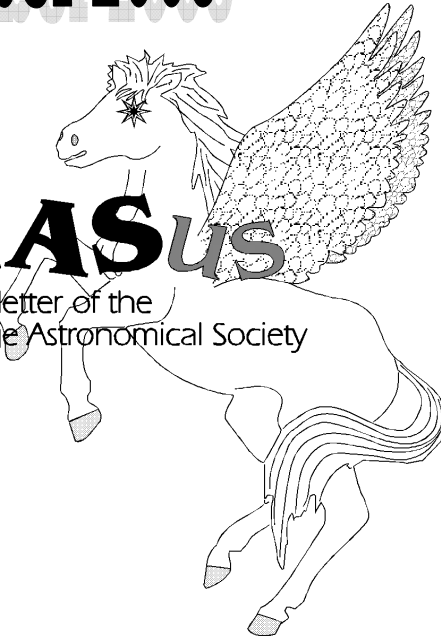
www/rasc.ca/princegeorge

November 2009

*Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.*

PeGASus

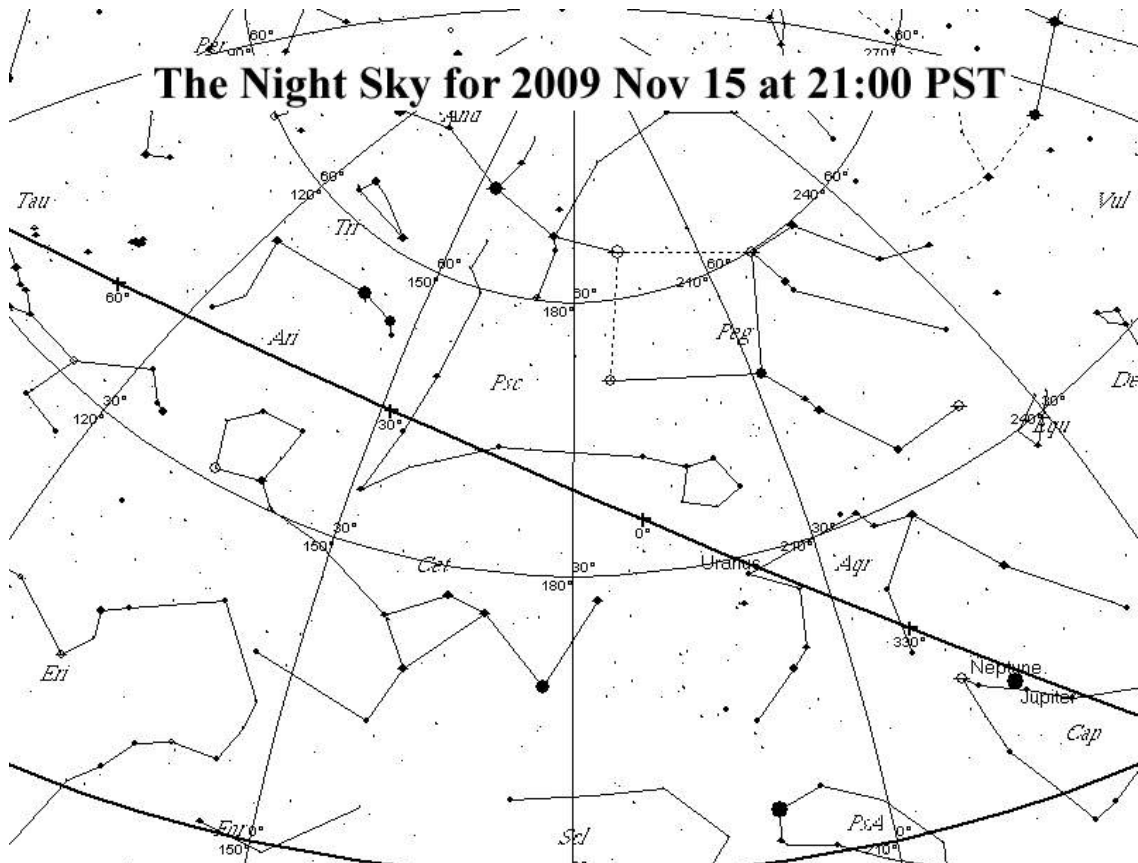
Newsletter of the
The Prince George Astronomical Society

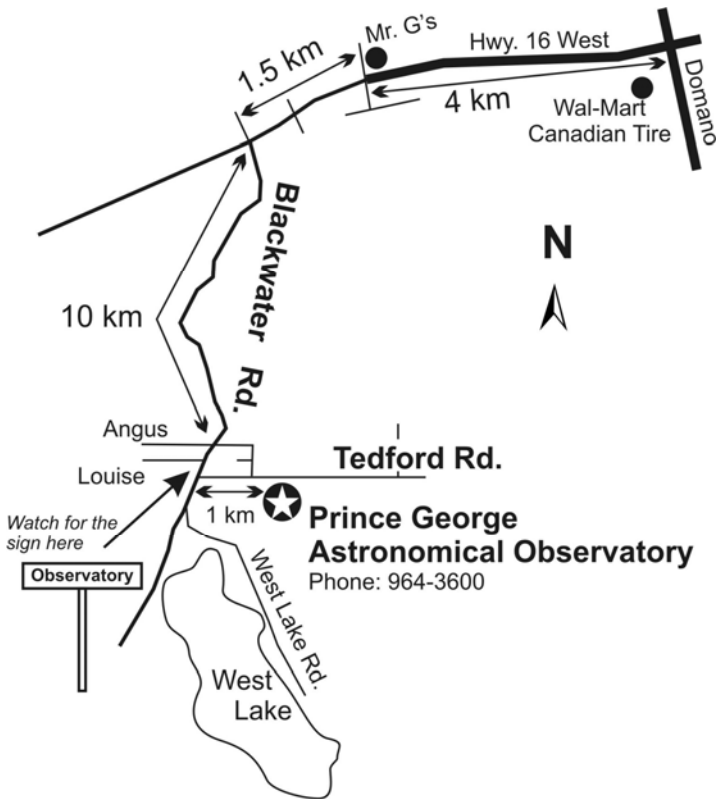


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The RASC: Prince George Centre meets next,
Saturday November 21
at the Observatory (see website for details)





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Contributions to the newsletter are welcome.

Deadline for the next issue is
November 20, 2009

PeGASus Editor
Gil Self
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Coming Events

| <i>Date</i> | <i>Event</i> | <i>Time</i> | <i>Place</i> | <i>Volunteers</i> |
|--------------------|---|---------------------------------|-------------------------------|-------------------------|
| Oct 30 | Sidewalk Viewing |until 9:30 pm.. | Pine Center |everyone welcome! |
| Nov 13 | Open House | early evening | Observatory | everyone welcome! |
| Nov 21 | Business meeting/ Social |6:00 pm..... | Observatory |members welcome! |
| Nov 27 | Sidewalk Viewing |until 9:30pm.. | Pine Center |everyone welcome! |
| November 28 | ..Annual Christmas Pot Luck..... |start about 5:30pm, | Eating around 7:00 ish | |

At the Observatory

E-mail Brian brianbattersby73@yahoo.ca for menu suggestions

For an up to date list of the Volunteer Schedule visit our website in the MEMBERS AREA
www.rasc.ca/princegeorge

Editorial

New Executive New Energy,

A message from the new President

I have been given the opportunity to serve as president at our AGM, and I did not even have to give my "I am a jelly doughnut" (or "Ich bin ein Berliner!") speech, and I still made it. Thank you for your confidence. I want to work on making our improving our astronomy experiences, making observatory improvements to reduce maintenance and rewarding for the membership. I also want to make more progress on raising light pollution awareness and solutions that will benefit everyone.

Our new executive includes Blair Stunder as our new Vice President, Brian Battersby remains as our Treasurer, Denise Stoltz is our new Secretary, while Wayne Sanders, Jim Van Doren, Glen Harris, Doug Wayland, Fae Mooney, Bob Nelson, Rusty Hoff are members at large, and Gil Self will be our past president.

I want to thank our outgoing secretary Glen Harris who has done a tremendous job of organising us, and the workmanship on projects he has participated in.

I also want thank our out going president Gil Self for his many years of service, and juggling the various passions and goals of the executive.

I want to welcome all members to take full advantage of what we offer, enjoying & observing the night sky with other members, and helping to inform and inspire people of all ages to learn astronomy and science. Our membership has a great potential for doing that, while savouring the beauty of the night sky and gaining understanding. I believe our sharing the night sky and helping spark interest in people will have a long lasting positive affect on our future, a future with people more scientifically literate and aware of our place in the cosmos.

I also encourage all of you to consider joining the 'Viewers E-mail List' so you can be informed when impromptu viewing evenings occur. You do not need your own telescope, since we have number of scopes available. You can also just enjoy the company of other members under starry skies.

I feel very positive that this new team can breathe new life in to the club and make significant progress on improving astronomical experiences for the membership and guests.

I hope see out under our starry skies.

Maurice Sluka

Newsletter format mailed hard copy vs. electronic

The subject of whether we should offer the newsletter in electronic format has been suggested. This has some advantages of reduced costs of mailing and without the current limits on size & colour pages. We would also reduce carbon footprint of paper & printing (providing members don't print their own copy to read).

On the other side many look forward to receiving their copy in the mail, and enjoy reading a hard printed copy. We also send paper copies to other Centres and the local library for their records.

Please let us know if you prefer an electronic copy to the mailed paper copy. Then depending on the number of responses, the executive can determine if the numbers are sufficient to justify the offering of an electronic format.

Thank you,

Maurice Sluka

The Night Sky for November 2009

by Bob Nelson, PhD

Hi Folks,

It's good to be back! Sadly, there was no October PeGA-Sus, (due an illness in Gil's family), but hopefully, we can now look forward to a good year with renewed fervor.

When you read this, I'll be away again (sigh). This time, it's not for idle pleasure, but to work. I have volunteered to serve for three weeks with the International Humanity Foundation in Nakuru, Kenya (150 km NW of Nairobi). It all started with a conversation with Dan Gray, of Sidereal Technology (maker of our new telescope drive corrector). Dan spoke so glowingly of his experiences with the Foundation's work with children in the third world that I was inspired to go with him. (I will have left on Oct 11 and returned on Nov 5.) At time of writing, I am not sure what I am getting into, but will be happy to relate my experiences when I get back. (I should still get my email -- feel free to write to me -- but email in Africa is S-L-O-W.)

Anyway, here is what will be happening in our skies this month:

MERCURY is an evening object this month; however, it is an unfavourable apparition for us "northies" due to the inclination of the ecliptic. Consult the Observer's Handbook for more information.

VENUS, is a morning object all month. At mid-month, it rises at 06:14 and, at sunrise 1.5 hours later it lies some 10° above the SE horizon. Then, it is a 10:gibbous blob at magnitude -3.9. Venus is leaving us as it zooms around the Sun faster than we do. Therefore its visibility (and elongation from the Sun) will decrease in the coming weeks as it approaches superior conjunction.

MARS is in Cancer until month's end, after which it passes into Leo. It's an evening object all month, rising at mid-month at 21:34 and making a transit at 05:36 (ooh!). It will, of course, be better placed, as the months roll on. It's a 9" disk at magnitude 0.2. This column should have reach you in time, and between Oct 30 at 11:35 (PDT) and Nov 2 at 14:35 (PST), Mars will have passed through the Beehive Cluster (M44). Using Guide 8 zoomed way in, I detected 4 occultations, two of which are visible us in Prince George. Here are the times (all in PDT):

| Date | Ingress | Egress | Star |
|-------|---------|--------|------|
| ----- | | | |
| ----- | | | |

| | | | |
|--------|----------|-----------|---------------|
| Oct 31 | 02:19:59 | 02:26:44 | GSC 1398-0030 |
| | | | 14.2 |
| Oct 31 | 12:14:14 | (grazing) | GSC 1395-0802 |
| | | | 12.5 |

If you are interested, accurate timings are useful to the astronomical community. Visit <http://www.lunar-occultations.com/iota/iotandx.htm> for more information. Some pictures would be nice (hint, hint), or any old observations.

JUPITER, in Capricornus until 2010 (Jan), is an evening object this month. At sunset at mid-month, it lies only 17° above the SSE horizon, it transits at 17:57 and sets at 22:27. It's a 39" disk of magnitude -2.3.

SATURN, in Virgo until 2012, is a morning object this month. At mid-month, it rises at 02:26 and lies almost 37° above the southern horizon at sunrise. It's a 17" disk of magnitude 1.0. For you early risers (or folks that stay up really late).

URANUS, in Aquarius until January, is an evening object all month. At sunset at mid-month, it lies 17° above the ESE horizon, making transit at 20:05 and setting at 01:51. As usual, it's a 3.6" disk at about magnitude 5.7.

NEPTUNE, in Capricornus until 2010 (March), is an evening object all month. At sunset at mid-month, it lies some 18° above the SSE horizon, making a transit at 18:15 (PST) and setting at about 23:00. As usual, it's a 2.3" disk at about magnitude 8.0.

Standard Time returns Nov 1 at 02:00 (yeah!!)

CONSTELLATIONS to look for in November (at 21:00 PST) are Sculptor, Western Cetus, Pisces and Andromeda.

Sculptor (Scl, "The Sculptor's Tools"), another southern constellation at the limit of our visibility here in Prince George lies out of the Milky Way. It contains NGC 253, a spectacular spiral galaxy, a number of fainter galaxies, a faint globular (NGC 288) and, near the latter, the south galactic pole which, at declination 27.5 degrees south, is just visible from Prince George. The brightest star, Alpha Sculptoris, is a B7 giant radiating 1700 times solar, has a radius of 7 times solar, and a mass of 5.5 solar. The reason it is so dim (at 4.3 mags) is that it lies at a distance of 670 lightyears. Its claim to fame – and the reason I am telling you all this – is that at an age of 81 million years, it

is at the end of its hydrogen-fusing cycle. The core, which is comprised almost entirely of helium, will ignite after the star expands, the surface cools, and the star becomes a red giant. The star is presently classified as a slow rotator; this relative stillness results in a lower than solar surface helium abundance (no mixing) and an enhanced abundance of heavier elements such as silicon, titanium and manganese. The magnetic field generates star spots, enabling astronomers to measure its rotation period. The magnetic field occasionally flips and controls the behaviour of a close-in cloud of circumstellar gas. [Taken in part from <http://www.astro.uiuc.edu/~kaler/sow/fomalhaut.html>.]

Western Cetus (Cet, "The Sea Monster"), contains a number of galaxies, including M77, which is a bright and compact spiral galaxy, contains three distinct sets of spiral arms and lies about 60 million light years distant. According to Burnham, this and NGC 4594 in Virgo (The "Sombrero") were the first two systems in which very large redshifts were discovered, leading to the discovery of the expanding universe.

Pisces (Psc, "The Fishes"), lies on the Zodiac. It contains M74, according to Burnham, one of the faintest and most elusive of the Messier objects requiring a dark sky and suitable eyepiece. Pisces also contains, according to Norton's 2000.0 Star Atlas, the galaxies NGC 487 and 524.

Andromeda (And, "The Princess of Ethiopia"), is familiar to most of us; it contains the "Great Andromeda Galaxy" M31 along with its satellite ellipticals, M32 and NGC 205 (a.k.a. M110 -- but not really on Messier's list). According to Burnham (and the references therein), M31 has been known at least as far back as 905 AD; it was known as "The Little Cloud" and appeared on star charts long before the discovery of the telescope in 1609. Simon Marius is usually credited with the first telescopic observation in 1611 or 1612. Early observers thought the "nebula" consisted of glowing gases but long photographic exposures early in this century revealed it to be a vast star system. Edwin Hubble, observing Cepheid variables with the 100" Mt Wilson telescope, established the distance as around 90,000 light years, well out of this galaxy. Later, corrected calculations in 1953 extended the distance out to 2.2 million light years. We now know that M31, along with M33 and our galaxy, are the three largest members of the "Local Group", gravitationally bound and holding numerous smaller galaxies, including the Large and Small Magellanic Clouds. Needless to say, M31 has been the subject of many studies by professionals using the largest telescopes and is also a fine object for amateur study and photography.

Street Light Program Could Save Thousands

Prince George is looking into what could be a significant energy savings

Quote from CKPG:

"The City is looking into what could be a significant energy savings program for its streetlights. It's considering a retrofit of 1400 streetlights, adding a new technology to dim the lights during periods of reduced traffic. An experimental test has resulted in a 30 percent energy savings. The City has 46 lights already in place along 15th Avenue, and have had no complaints related to the dimming of street lights."

This is a good first step. We just need to continue to bring awareness to the issue and all the benefits to everyone.

I am working on organizing a lighting seminar for local engineers, architects, electricians, and electrical wholesalers. Anyone who is interesting in helping inform the problems of poor lighting and solutions, please contact me.

Cheers

Maurice

Cold Weather Astronomical Observing Gear for northern BC

The nights are getting cooler and longer now (more time to observe!), good gear make you observing experience much more rewarding. The late fall sky can become clear once the temperatures drop low enough that fog does not form. Since observing does not generate much heat warm clothes are necessary. I have observed at -35C for a few hours comfortably with good clothing.

The key for keeping comfortable is keeping your entire body, hands, feet and head warm & dry. Here is some recommended gear:

Feet:

-10C

Wool socks with normal footwear, avoid cotton in cold weather since it can easily get damp and become very cold and uncomfortable.

-15C

Light duty winter boots with thinsulate is effective for short periods, providing they are not too tight and crush the air out of the insulation.

-20 to -40C

The best cold weather boots I have used are the Baffin 'Doug Stoup' & 'Impact' designed for extreme cold with a temperature rating for -100C. These are too large & bulky for use while driving, but fantastic for cold nights under crystal clear sky. These boots are best worn with bare feet, so your feet remain dry. Baffin is a Canadian company also. I have spent over 5 hours with my bare feet in these boots in -35 C and only near then did I feel a hint of cooling. They may seem a little expensive (approximately \$150.00) for those occasional nights, but are cost less than a quarter of a typical TeleVue eyepiece and you can get the most out of both. After use they you need to remove the liner to dry.

Hands:

Most telescopes have steel parts, since plastic can become brittle in - 0C temperatures, these can be very uncomfortable to handle with bare hands. There are many good glove manufacturers; you can consider ones designed for skiing since they are designed for cold & dexterity without bulk. Some members use gloves with retractable cover over the fingers to make brief delicate adjustments to their scope. Some gloves even have an outside pocket above the knuckles where you place a chemical heating pad and maintain complete dexterity. Look for gloves that have a gauntlet that extends past the wrist and over your coat arm.

Coats:

A good coat designed for cold winter weather can make a huge difference. Look for a coat with the following:

- Wind resistant shell & long enough to protect the upper thigh
- Thick insulation (synthetic or down), the insulation should be in sewn pockets so the insulation does not pack down and leave other areas thin.
- Waist draw cord to keep the warmth in, cuffs that seal at the wrists
- An insulated hood & drawstring to protect your head, and lots of pockets for your gear (the inside ones are good for keeping battery powered items operating, spare red light batteries etc.).
- Remember to get a size big enough, so when wearing heavy thick sweaters it is not too tight, looser is better.

Some members use industrial 'pipe liner' coats & bib pants, these are effective and not too bulky.

Headgear:

Warm headgear is very important so your observing is fun and not an endurance test. A cotton or wool ball cap can protect well down to -10C, but the brim can sometimes get in the way near the scope and eyepiece. An inexpensive and effective cover is a 'hard hat liner', which covers the head very well and cost under \$10. Toques are very good and are available in knit acrylic up 6 layers thick, wool, fleece. They should not be tight and extend down low enough to cover the ears. Some toques even extend down enough to cover one's "mutton chop" sideburns also.

Neck:

One can also wear a fleece 'neck gaiter' or scarf, to keep out the drafts from the neck while leaning over the eyepiece. A bandana is also useful, since you can pull it up so you cannot breathe directly on the eyepiece and fog or frost it up.

Thermal long-johns etc

Thermal Long Johns are widely available; some of the best are designed for mountain climbing. Fleece sweaters or jacket can make an effective additional layer.

Other tips:

Remember all insulating winter clothes use air for insulation, so be careful that they do not get crushed or compressed during storage, since they will lose their insulating effectiveness.

Staying out of the direct wind make a significant difference, since layer of warm air against your skin and clothes is not stripped away as fast in the wind.

Chemical heating pads are nice to have, you can use in each glove and pockets when it gets down to -20C. They are very effective and offer warmth of hours.

Stop for break when you feel cold. You can bring a hot drink & snack, so your body can create more of its own heat. You can also go inside, just remember to minimise your white light exposure to preserve your dark adaptation. You should shed your outer layers, so you do not sweat and dampen your inner layers, this also allows your outer layers (gloves, headgear, coat, and boots) to warm up and evaporate any moisture.

Hardcore gear for the determined observer during those deep January nights:

If you are determined to bag your quarry of a Jupiter triple shadow transit during a high-pressure cold weather system, here are some addition gear you can consider:

- Black Neoprene face mask to prevent frostbite
- Thinsulate balaclava and loose fitting toque on top
- Russian style fox fur hat

Some of this gear can be found at the end of season for deep discounts, so if your timing is good you make some nice savings. I hope these tips will help you have a more rewarding winter observing season. See you under our cold crystal clear skies pierced with stars.

Maurice

WHAT'S OUT THERE

Playing with Strings

by
Fae Collins Mooney

“One cannot help but be in awe when one contemplates the mysteries of eternity, of life, of the marvelous structure of reality,” Einstein once stated. It is enough if one tries merely to comprehend a little of this mystery each day.”

A worthy quest for IYA, I decided. And so, this summer, I sat in a shady spot to tackle a book called *Faster than the Speed of Light: the story of a scientific speculation*, by Joao Magueijo, who has a doctorate in Theoretical Physics. He has had me contemplating some of these mysteries and how we attempt to comprehend them as part of our reality... However, the more I contemplate, the more incomprehensible it all seems to become. Consider cosmic strings, and the implications of Dr. Magueijo's theory of the varying speed of light (VSL).

The concept of light speed being variable is not new; even Einstein himself proposed a varying speed of light theory almost a hundred years ago. We have been taught, and have believed, that the speed of light is constant, invariable. But, what if it isn't?

When paired with cosmic string theory some interesting things happen. Cosmic strings, predicted by some particle physics theories and as yet have not been observed in nature, are speculated to be line-like threads of concentrated energy that extend across the universe. Dr. Magueijo found that when he “plugged cosmic strings into the equations of this VSL theory... the speed of light could become much larger in the immediate vicinity of the string, as if a ‘coating’ of high light-speed enveloped it.” How fast? And – how far?

This theoretical physicist believes that a corridor with an extremely high speed limit would be created, and it would extend across the universe! We could cross – not just our galaxy, but – the universe, in the blink of an eye!

Just what space travel is begging for, he says – “a fast lane.”

But, wait a minute – what about time dilation and the twin paradox? He admits that Einstein's time dilation effect does create a predicament for space travel. As he explains it: “Even if we found a way to travel close to the speed of light, although it might become possible to make a return trip to distant stars within a single lifetime, when the

spaceship returned, its occupants would find their civilization gone...” That's because for the space travellers only a few years would have passed, while on Earth “millennia would have flown by.” And that understanding of how time passes when one twin is accelerated to near to the speed of light and the other remains on Earth has left travelling great distances through space in the realm of science fiction.

Not with VSL theory: Even though a time dilation effect would remain, “along a VSL cosmic string no such annoyances would hinder the space traveler” because “this effect only becomes significant if the speed of the traveler is comparable to that of light.”

What's he saying??? The speed of light, expressed as being variable in this theory, “means the *local* value of *c*” [*c* representing the speed of light, as in $e=mc^2$].

The *local* value of *c*... Okay, so what does that mean? “Since along a VSL cosmic string the value of *c* may be much higher, we could move at very high speeds indeed and still be traveling much more slowly than the local value of *c*, so that time dilation would be negligible. The enterprising astronaut could then move speedily along fast-tracks...”

Whoa... wait a minute – “fast-tracks”??? “Objects that occur in some VSL field theories, taking the form of cosmic strings along which the speed of light is much higher.” Okay, so our astronaut is whizzing along this fast-track and... “exploring the most distant corners of the universe but still moving much more slowly than the local speed of light.” And that is how he can avoid the twin paradox effect; when he returned from the far reaches of the universe he would still be about the same age as his twin, thus being able to visit distant galaxies within a human lifetime and return to tell his contemporaries of his great adventure.

If this amazing theory should be proven to be true, “it will dramatically change the way we perceive ourselves in the universe,” observes Dr. Magueijo, “as well as our prospects of contact with alien life...”

Contact with alien life... Hmm... UFOs... little green men... Maybe we have already been visited by enterprising alien races that figured all this out a long, long time ago...

Sometimes fact can imitate fiction, and sometimes scientific fact can originate from scientific – or speculative – fiction, just by asking - “What if?”

Beam me up, Scotty. I want to go home...

My experience with the Northern Sky by Viviana Rodriguez

Last year I had the opportunity to go star gazing in Fort St. John B.C., the farthest north I've ever been in my life. It was a unique experience for me. Since I was at primary school, I've always dreamed to look through a telescope. In Bogotá, my hometown, most of the schools take the students to visit the planetarium and the some of the observatories that are in the city. Since then, I always wondered if those characters they drew with imaginary lines and the stars they mentioned were really out there in the sky. I wanted to see it with my own eyes. Between September 2008 and this year I proved it.

I cannot describe how excited I felt when Pamela (the expert between both of us) pointed some of the northern constellations and main stars, like: Aquila, Delphinus, Cygnus, the Pleiades, the North star, double clusters and many more. I was even more surprised when I saw the Milky Way.

It is the most beautiful spectacle and you can get it for free. Every night we were out, the sky wore for us its best outfit and all its diamonds.

One of those nights I also had the chance to look at the sky through a telescope, another dream came true. I must admit that I was a little shocked when I saw the moon for first time through the telescope. It looked gigantic and astonishing. That was a memorable night. In fact we were looking for Mars, and we did find it, only we were not sure if it was it or not.

In May 2009, Pamela invited me to Prince George Center of RASC (Pamela is a member of the club). We went to a lunar marathon, and although we could be there just for one night, we did enjoy it so much and took advantage of all those knowledgeable people there. That night I looked through many other telescopes and even a huge telescope they have at RASC Prince George Center. That night was incredible and I learned a lot.

I want to enjoy this opportunity to thank Pamela and all the staff in Prince George for that wonderful and unforgettable experience. That night and those experts encouraged me to keep looking and finding what is out there, in that intriguing and fascinating place, our sky.

Thanks,

Vivian Rodriguez.

Amateurs Appreciate Club Members' Expertise by Pamela den Ouden

In 2007, I joined the RASC Prince George Centre as a remote member living in Fort St. John. I attended the May viewing in 2008 and this past May, attended the Isabel Williamson Lunar Marathon. Some of you may remember my friend, Viviana, from Colombia. I'm sure we disturbed many viewers with our "oooh-ing" and "aaaahh-ing" over the moon-face features that we were identifying and marking off on our long lists that had been prepared for us by the club. We savoured the names as they rolled off our tongues: Tycho, Plato, Ptolemaeus, Aristoteles. It was like a foreign language and a visit to a new world.

Viviana and I had been out on several occasions here in Fort St. John with binoculars, lawn chairs, a thermos of hot chocolate, and, occasionally, with my telescope. We would drive a few miles north of town, find a place to pull over, and set up for a few hours of celestial viewing. Her enthusiasm is infectious, and she delighted me by telling me the Spanish names of some of the constellations. We believe that "the heavens declare the glory of God a the sky above proclaims his handiwork" and "He determines the number of the stars; He gives to all of them their names" (Psalm 19:1; Psalm 147:4). We have also viewed from the Moberly Lake area, where there is even less light pollution and the view of the Milky Way is stunning. We have seen four of the moons of Jupiter and the rings of Saturn with our own eyes (aided my Meade ETX-125).

We are such amateurs, and we really appreciated the great expertise of all the club members who were so generous with their time and knowledge. I look forward to the weekly Our Night Sky e-mail bulletins, which are so helpful. When there's a celestial "event," I dutifully set my alarm, arise before dawn, scan the sky, and hope to see what was described!

In July, Viviana went home to Bogotá, and in August, I visited her there for 10 days. While there, we visited the Planetarium (El Planetario de Bogotá). A huge, familiar banner proclaimed the International Year of Astronomy. There was also a special exhibit to commemorate the 40th anniversary of the Apollo 11 moon landing. Unfortunately, on the sidewalk astronomy viewing night, it was overcast and raining, but the visit to the Planetarium show was well worth it (even though the sound track was in Spanish!!)

I felt like an ambassador for our club and was very proud to be a member of the Royal Astronomical Society of Canada, Prince George Centre!

Viviana has now moved on to the University of Ottawa, but her star-gazing days are not over. She says she'll search out an astronomy club in Ottawa, and hopes to find the same kind of expertise there that is so abundant at the Prince George Centre.



PRINCE GEORGE ASTRONOMICAL SOCIETY
ROYAL ASTRONOMICAL SOCIETY OF CANADA
PRINCE GEORGE CENTRE
7365 Tedford Road
Prince George, BC
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**Business Meeting Minutes
October 17, 2009**

Date: October 17, 2009

Location: PGOA 7365 Tedford Rd

Chairperson: Gil Self

Recording Secretary: Glen Harris

Executives Present: Gil, Glen, Maurice, Wayne,

Doug, Jim Van Doren, Brian

Members Present: Fae, Denise

Meeting Called to Order at 6:18 pm.

1. Previous Meeting Minutes

Minutes of September 9, 2009 meeting were circulated.

Motion to accept minutes as circulated. Moved:
Wayne Seconded: Maurice Carried

2. Treasurer's Report

Club Account: \$6450.24

Gaming: \$930.23

Details on file

3. Correspondence, Secretary's Report

Various bills, statements, Centre newsletters, and Government form 11.

4. Old Business

- Maintenance logs are now available in the Members Area on the web site.

5. New Business

- The viewer's list has been revived. When key carrying members plan on observing, they will inform members via the viewers list.

- A number of volunteers have stepped forward to help Wayne with the Northwood tours on October 28 & 29.

- The Prince George Centre will host a booth at Exploration Place on Friday, October 23. Volunteers are needed. Start time is 7pm.

- Motion: approve the purchase of a replacement for the defective computer running meteor monitor and all sky camera applications. Cost \$184.72

Moved: Glen Seconded: Wayne Carried

- Motion: approve the purchase of red light flashlights and planispheres. Cost ~ \$200

Moved: Maurice Seconded: Wayne Carried

- Motion: approve funds to produce more CDs. Cost not to exceed \$100.

Moved: Maurice Seconded: Wayne Carried

- Suggested donation for visitors has been raised to \$3 for individuals and \$7 for families. Minimum suggested donation for tours will rise to \$45. These rates will take effect starting in 2010.

5. New Business (continued)

- A tour for those businesses and individuals involved with the dome repair project will be held on Saturday November 21 and possibly Friday November 20, based on the number of people responding.

- Motion: approve spending for cold cuts and munchies for the dome repair tour.

Cost ~ \$200 for 2 nights (if necessary)

Moved: Maurice Seconded: Gil Carried

- Maurice will contact Volunteer Prince George regarding volunteers. Prospective volunteers would need to acquire a RASC membership and be willing to undergo a criminal record check.

- Maurice will spearhead organizing a Light Pollution Abatement seminar that would involve professionals, engineers, electricians, etc. Motion: approve funds for the seminar. Cost ~ \$200.

Moved: Maurice Seconded: Doug Carried

- Discuss and plan the Spring viewing time at the November meeting.

- There are ongoing optical problems with the telescope. An impartial consultant will be hired to perform an unbiased analysis and evaluation of the 24" telescope to help us decide what remedial action to take. A preference will be given to someone associated with the RASC.

- Research fundraising with the goal of purchasing a Ritchey-Chretien type telescope. Mirror size is undecided at this time.

The next business meeting will be held on Saturday November 21, 2009 at 6:00pm. Location is the observatory, 7365 Tedford Road.

Meeting adjourned at 7:45 pm

Want to join the RASC Prince George Centre?
 Fill out the form below and mail it in to the address at the top of the form.
 Existing members can use this form to renew as well!



THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

136 Dupont Street, Toronto, ON M5R 1V2 Canada

Tel: 416-924-7973 Fax: 416-924-2911 Website: <http://www.rasc.ca>

Join/renew online at: <http://www.rasc.ca/join> Form Updated: 2008 July 14

ORDINARY MEMBERSHIP APPLICATION

PERSONAL INFORMATION

Name (Please print in full) _____

Address _____ City _____

Province/State _____ Country _____ Postal Code _____

Telephone (Days) _____ Telephone (Evenings) _____

E-mail Address _____

*Membership in the RASC includes one issue of the annual **Observer's Handbook**, six issues of the **Journal of the RASC** and six issues of **SkyNews** along with benefits that your Centre may also offer.*

APPLICATION

I hereby apply for membership in the Royal Astronomical Society of Canada. I understand that personal information is collected and used according to the Society's Privacy Policy available at www.rasc.ca/privacy.shtml

Note that **Toronto Centre** memberships are processed locally. Visit toronto.rasc.ca/content/membership.shtml for details and to download an application form.

YOUR CENTRE AFFILIATION (PLEASE CHOOSE ONE ONLY)

| ✓ | Centre | Base National Fee | Centre Affiliation Discount | Centre Fee | Total Fee |
|--------------------------|---|-------------------|-----------------------------|------------|-----------|
| <input type="checkbox"/> | Belleville | 67.00 | (23.00) | 31.00 | \$75.00 |
| <input type="checkbox"/> | Calgary | 67.00 | (23.00) | 36.00 | \$80.00 |
| <input type="checkbox"/> | Charlottetown | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Edmonton | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Halifax | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Hamilton | 67.00 | (23.00) | 36.00 | \$80.00 |
| <input type="checkbox"/> | Kingston | 67.00 | (23.00) | 28.00 | \$72.00 |
| <input type="checkbox"/> | Kitchener-Waterloo | 67.00 | (23.00) | 33.00 | \$77.00 |
| <input type="checkbox"/> | London | 67.00 | (23.00) | 27.00 | \$71.00 |
| <input type="checkbox"/> | Mississauga | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Centre Francophone de Montréal | 67.00 | (23.00) | 48.00 | \$92.00 |
| <input type="checkbox"/> | Montréal | 67.00 | (23.00) | 32.00 | \$76.00 |
| <input type="checkbox"/> | New Brunswick | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Niagara | 67.00 | (23.00) | 27.00 | \$71.00 |
| <input type="checkbox"/> | Okanagan | 67.00 | (23.00) | 28.00 | \$72.00 |
| <input type="checkbox"/> | Ottawa | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Prince George | 67.00 | (23.00) | 27.00 | \$71.00 |
| <input type="checkbox"/> | Québec | 67.00 | (23.00) | 34.00 | \$78.00 |
| <input type="checkbox"/> | Regina | 67.00 | (23.00) | 27.00 | \$71.00 |
| <input type="checkbox"/> | St. John's | 67.00 | (23.00) | 27.00 | \$71.00 |
| <input type="checkbox"/> | Sarnia | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Saskatoon | 67.00 | (23.00) | 33.00 | \$77.00 |
| <input type="checkbox"/> | Sunshine Coast (BC) | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Thunder Bay | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Toronto (see note at upper right) | | | | |
| <input type="checkbox"/> | Vancouver | 67.00 | (23.00) | 26.00 | \$70.00 |
| <input type="checkbox"/> | Victoria | 67.00 | (23.00) | 25.00 | \$69.00 |
| <input type="checkbox"/> | Windsor | 67.00 | (23.00) | 23.00 | \$67.00 |
| <input type="checkbox"/> | Winnipeg | 67.00 | (23.00) | 23.00 | \$67.00 |
| OR | | | | | |
| <input type="checkbox"/> | Unattached (No Centre Affiliation) | 67.00 | n/a | n/a | \$67.00 |

MEMBERSHIP FEE CALCULATION*

Your Total Fee (from table) \$ _____

Membership Outside Canada

United States **add \$16.00**
 International **add \$45.00** \$ _____

Journal of the RASC

Electronic Edition (Included)
 Canada **add \$16.80** (GST incl)
 Outside Canada **add \$23.00** \$ _____

Total Membership & Options \$ _____

* Note that membership fees outside Canada are in US currency.

PAYMENT OPTIONS

My cheque/money order is enclosed
 Visa or MasterCard

Name on Card: _____

Card # _____

Expiry date: ____ / ____ (mm / yy)

Signature: _____

Please return this form with payment to:

Royal Astronomical Society of Canada
 136 Dupont Street
 Toronto ON M5R 1V2
 CANADA

| | |
|-----------------------------------|--------------|
| Office Use Only RASC ID: _____ | Auth # _____ |
|-----------------------------------|--------------|

Please keep this portion for your records

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 Tel: 416-924-7973 Fax: 416-924-2911
 Website: www.rasc.ca

Your Membership is appreciated
 Thank you.

DATE: _____

Amount paid \$ _____

CHEQUE

VISA

MASTERCARD

**Royal Astronomical Society of Canada
Prince George Centre**

AKA the Prince George Astronomical Society

Phone: 964-3600

Email: pgcentre@yahoo.com

Website: www.rasc.ca/princegeorge

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